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CLAIMS:

1. An image monitoring system comprising:
a central controller; and
a plurality of digital still camera units operatively connected to the central controller, wherein at least one of the camera units comprises
an image sensor;
a motion detector operatively connected to the image sensor that causes the image sensor to receive image data when motion is detected;
a micro controller operatively connected to the image sensor and to the motion detector;
a first nonvolatile memory operatively connected to or included in the micro controller; and
computer readable program code stored on the first memory for causing the micro controller to determine whether the received image data should be transmitted to the central controller, wherein the central controller then determines whether the received image data should be transmitted to a monitoring station.
2. The image monitoring system of claim 1, wherein the plurality of camera units transmit image data wirelessly to the central controller.
3. The image monitoring system of claim 2, wherein the central controller further comprises a mesh networking protocol enabling image data to be routed indirectly and wirelessly through one or more of the camera units to the central controller.
4. The image monitoring system of claim 1, wherein at least one of the camera units further comprises a microphone.
5. The image monitoring system of claim 1, wherein at least one of the camera units further comprises both a colour and a black and white image

sensor to improve low-light sensitivity, wherein both image sensors are operatively connected to a single high-speed DMA bus.

6. The image monitoring system of claim 1, wherein at least one of the camera units is battery operated and comprises direct memory access circuitry between an image sensor and a second nonvolatile memory.

7. The image monitoring system of claim 1, wherein at least one of the camera units includes a pre-trigger feature that, following a detection of motion by the motion detector, transmits to the central controller a series of buffered images captured before the detection of motion.

8. The image monitoring system of claim 1, wherein the monitoring station forms a component of the image monitoring system, and wherein the monitoring station includes human personnel who further analyze the images to determine whether an alarm should be sent to an authority.

9. A method for image monitoring using a plurality of digital still camera units operatively connected to each other and to a central controller using wireless communications, the method comprising the steps of:

detecting motion of a moving object using a motion detector included in at least one of the camera units;

triggering, following the detection of motion of the moving object, an image sensor included in at least one of the camera units to receive an image of the moving object;

determining whether the received image should be transmitted wirelessly to the central controller by analyzing the image using a micro controller included in at least one of the camera units and operatively connected to the image sensor; and

determining whether any images received at the central controller from at least one of the camera units should be transmitted to a monitoring station.

10. The method for image monitoring of claim 9, wherein the central

controller further comprises a mesh networking protocol enabling image data to be routed indirectly and wirelessly through one or more of the camera units to the central controller.

11. The method for image monitoring of claim 9, further comprising the step of storing images received by the image sensor in a memory unit of a camera unit using direct memory access.

12. The method for image monitoring of claim 9, wherein the step of triggering an image sensor comprises triggering a black and white image sensor in low light conditions, and otherwise triggering a colour image sensor, wherein at least one camera unit includes both the colour image sensor and the black and white image sensor operatively connected to a single high-speed DMA bus.

13. The method for image monitoring of claim 9, further comprising a pre-trigger feature including the steps of:

- continuously receiving images from the image sensor;
- storing the received images in a memory buffer of at least one camera unit; and

- following a detection of motion by the motion detector, transmitting to the central controller a series of the stored images received before the detection of motion.

14. A camera unit for image monitoring comprising:

- an image sensor;
- a motion detector operatively connected to the image sensor that causes the image sensor to receive image data when motion is detected;
- a micro controller operatively connected to both the image sensor and the motion detector;
- first and second nonvolatile memories operatively connected to the micro controller;
- a random access memory operatively connected to the micro controller

and, through a high-speed DMA bus, to the image sensor; and
computer readable program code stored in the first nonvolatile memory
for causing the micro controller to transfer received image data directly from
the image sensor to the second nonvolatile memory over the high-speed DMA
bus.

15. The camera unit of claim 14, wherein the second nonvolatile memory is
a removable flash memory card.

16. The camera unit of claim 14, further comprising a battery for supplying
power to the unit.

17. The camera unit of claim 14, further comprising an electrical interface
operatively connected to the motion detector, wherein the interface is adapted
to receive a passive PIR motion detector connector from a security alarm
system, wherein the camera unit replaces a passive PIR motion detector of
the security alarm system.

18. The camera unit of claim 14, wherein the second nonvolatile memory
includes a settings file, whereby when the second nonvolatile memory is
removed from the camera unit and inserted into a reader connected to a
computer, a setup software program on the computer enables configuration of
camera unit features, which features are then loaded into the camera unit
when the second nonvolatile memory is re-inserted into the camera unit.

19. The camera unit of claim 18, wherein at least one of the camera unit
features is selected from the group consisting of time and date stamping,
erasing image data, image sequencing, image resolution, time lapse mode,
pre-trigger mode, scheduler, encryption/decryption, image capture on
arm/disarm, text overlay, enable LED, enable motion sensor, and relay output
polarity.